

# Texas Commission on Environmental Quality

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## INTEROFFICE MEMORANDUM

**To:** Luda Voskov, Project Manager  
Environmental Cleanup Section  
Remediation Division

**Date:** September 28, 2006

**From:** Joseph T. Haney, Jr., M.S.  
Toxicology Section  
Chief Engineer's Office

**Subject:** Toxicology Section Review of the  
Derivation of Sediment Protective Concentration Levels (September 18, 2006) for  
Gulfco Marine Maintenance Federal Superfund Site, Freeport, Texas.

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The Toxicology Section (TS) reviewed the September 18, 2006 letter from Gulfco regarding intracoastal waterway sediment and surface water data. Specifically, TS reviewed the *Fish Tissue Investigation* section and Attachment B, which presents calculations of sediment protective concentration levels (PCLs) based on the human consumption of fish, to ensure compliance with the Texas Risk Reduction Program (TRRP; 30 TAC §350) rule and applicable TRRP guidance (i.e., TRRP-24). The Gulfco letter was prepared by Pastor, Behling, & Wheeler, LLC. TS focused on sections of the letter related to evaluating human health risks and hazards associated with potential exposure to site-related chemical contaminants (i.e., fish tissue risk-based exposure limit (RBEL) and sediment PCL calculations). Other issues discussed in the letter were not reviewed (e.g., sediment/surface water nature and extent evaluation). The section headings below correspond to those in Gulfco's letter of September 18, 2006.

### **Fish Tissue Investigation**

This section indicates that based on the sediment PCLs developed for the site, sediment concentrations near the site are below levels that would adversely affect fish and crab consumers, and as such, a fish/crab sampling program to evaluate human ingestion of fish/crab is unnecessary. However, due to concerns raised in the TS comments below and based on the site sediment data evaluation presented in Table 4, TS cannot agree.

### **Attachment B**

This attachment presents calculations of fish tissue RBELs and sediment PCLs protective of the human ingestion of fish (i.e.,  $RBEL_{Fish}$  and  $^{Fish}Sed_{Ing}$  PCLs). However, the fish tissue RBEL equations used are not those from Table 5-3 of TRRP-24. Specifically of concern is the equation used for carcinogens, which incorporates averaging time (ATc) and exposure duration (ED) terms that do not appear in the TRRP-24  $RBEL_{Fish-c}$  equation (see Table 5-3). Adding these terms to the  $RBEL_{Fish-c}$  equation given in TRRP-24 has the effect of increasing the fish tissue RBEL (and carcinogenic-based  $^{Fish}Sed_{Ing}$  PCL) by a factor of about 2.4. In addition to the USEPA documents cited by TRRP-24, TS notes that neither the USEPA Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (October 2000; EPA-822-B-00-004) nor the Texas Surface Water Quality Standards (August 2002; RG-194) include these terms when deriving water criteria protective of the human ingestion of fish.

An additional concern is the fraction organic carbon ( $OC_{sed}$ ) for bottom sediments used in the  $FishSed_{Ing}$  PCL calculations. While the  $OC_{sed}$  used (0.04) is the default value from the Human Health Risk Assessment Protocol (HHRAP) for Hazardous Waste Combustion Facilities, TS has historically considered 0.04 to be a high-end value and used lower  $OC_{sed}$  values for Texas waterbodies. TS suggests use of the  $OC_{sed}$  value (0.01) recommended in the September 27, 2006 interoffice memorandum from Larry Champagne to Luda Voskov. TS defers the evaluation of the biota-to-sediment accumulation factors (BSAFs) used by Gulfco to TCEQ staff with expertise in that area. TS suggests use of a fish lipid content of 0.03 as recommended in the September 27, 2006 interoffice memorandum from Larry Champagne to Luda Voskov.

The overall result of these suggestions (i.e., no ATc and ED in  $RBEL_{Fish-c}$  calculations,  $OC_{sed}$  of 0.01, fish lipid content of 0.03) would be a reduction in carcinogenic-based  $FishSed_{Ing}$  PCLs of approximately 4 times, and a reduction in noncarcinogenic-based  $FishSed_{Ing}$  PCLs of about 1.7 times.

Please call me at (512) 239-5691 if you have any questions regarding this evaluation.

cc: Toxicology Section (via e-mail), Board, Remediation File